AMENDMENTS TO THE DRAWINGS:

The attached sheets of drawings includes amendments to Figures 1, 14, 15, and

17 to correct informalities.

Attachments: 3 Replacement Sheets (one sheet for Figure 1, one sheet for
                      Figure 14, and one sheet for Figures 15 and 17); and
                      3 Annotated Sheets (one sheet for Figure 1, one sheet for Figure
                      14, and one sheet for Figures 15 and 17).

REMARKS

Applicant hereby amends claims 1, 2, 7, 11, 12, and 18-20 to correct informalities. Claims 1-20 remain pending in this application.

Objection to Drawings

The Examiner objected to Figure 1 under 37 C.F.R. § 1.84(p)(3) "for failing to properly use underlining." The Examiner suggests "deleting the underlining for reference numeral 10." (Office Action, page 2, paragraph 4.)

Applicant hereby amends Figure 1 according to the Examiner's suggestion.

In addition, the Examiner objected to Figures 14 and 15 under 37 C.F.R. § 1.84(p)(4) "for failing to use distinct reference characters for different parts." The Examiner alleges, "'Group 1' and 'Group 2' of FIG. 9A through FIG. 10 correlate with edge point areas of hole pattern P3 while the 'Group 1' and 'Group 2' of FIG. 14 and FIG. [15] correlate with the edge point areas of pattern P5." The Examiner suggests "renaming 'Group 1' and 'Group 2' in both the drawing and specification for FIG. 14 and FIG. 15." (Office Action, paragraph bridging pages 2 and 3.)

Applicant hereby amends Figures 14 and 15 according to the Examiner's suggestion. Applicant hereby also amends Figure 17 for the sake of consistency.

Thus, the present Amendment overcomes the Examiner's objections and does not add any new subject matter.

Objections to the Specification

The Examiner objected to the Specification of the application because of the following informalities: (1) The Abstract has a word count of greater than 150 words; (2) at page 2, line 10, there is a spelling error that the Examiner suggests correcting; and (3) page 10, line 11, allegedly refers to the wrong reference numeral element and the Examiner suggests amending the relevant term to "a processor 14." (Office Action, page 4, paragraph 4.)

Applicant hereby amends the Abstract to have a word count of less than 150 words. Applicant hereby also amends the Specification according to the Examiner's suggestions to correct the informalities at page 2, line 10, and page 10, line 11. Thus, the present Amendment overcomes the Examiner's objections and does not add any new subject matter.

Objections to Claims 2, 12, and 18

The Examiner objected to claims 2, 12, and 18 because of the following informalities: (1) Claim 2, at line 9, uses the term "integral multiples," which the Examiner suggests amending to "integer multiples"; (2) claim 12, at line 1, refers to claim 12, and the Examiner suggests amending claim 12 to depend from claim 11; (3) claim 18, at line 6, contains a term with a grammatical error, which the Examiner suggests amending to "...an integer multiple." (Office Action, page 5, paragraph 2.)

Applicant hereby amends claims 2, 12, and 18 according to the Examiner's suggestions. Thus, the present Amendment overcomes the Examiner's objections and does not add any new subject matter.

§ 103(a) Rejections of Claims 1-20 over *Takane et al.* and *Gleason et al.*

Applicant respectfully traverses the rejection of claims 1, 2, 4, 5, 11, 12, 14, 15, 17, and 19 under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 6,538,249 to Takane et al. ("*Takane et al.*") and U.S. Patent No. 6,456,899 to Gleason et al. ("*Gleason et al.*"); the rejection of claims 3 and 13 under 35 U.S.C. § 103(a) as unpatentable over *Takane et al.* and *Gleason et al.*; the rejection of claims 6 and 16 under 35 U.S.C. § 103(a) as unpatentable over *Takane et al.* and *Gleason et al.*; the rejection of claims 7, 8, 10, 18, and 20 under 35 U.S.C. § 103(a) as unpatentable over *Takane et al.* and *Gleason et al.*; and the rejection of claim 9 under 35 U.S.C. § 103(a) as unpatentable over *Takane et al.* and *Gleason et al.*

"Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented." *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1 at 17-18 (1966).

"[T]he analysis supporting a rejection ... should be made explicit" and it is "important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements in the manner claimed." *USPTO Memorandum* from Margaret A. Focarino, Deputy Commissioner for Patent Operations,

May 3, 2007, page 2 (citing *KSR Int'l Co. v. Teleflex, Inc.*, No. 04-1350 (U.S. Apr. 30, 2007)).

Takane et al. fails to teach or suggest a pattern measuring apparatus comprising, inter alia, a calculator which "<u>detects</u>," or a method comprising, inter alia, "<u>detect[ing]</u>" an "<u>edge</u>" of a "<u>pattern</u>" "<u>by scanning an image of the pattern with edge reference data</u>," as recited in amended claims 1, 7, 11, and 18-20 (emphasis added).

Takane et al. teaches "obtain[ing] an image which is focused on all portions of a sample" (Abstract). "[T]wo images are captured: one in which a focal position is set on [a] surface of [a] semiconductor sample and the other in which a focal position is set on [a] bottom surface of a contact hole. Then, in-focus portions can be extracted from each image so as to produce a composite image, which is a two-dimensional image focusing on all surfaces of the sample" (col. 5, lines 8-14). "[C]omposition using n images can be performed by sequentially repeating the same process on a series of image pairs" (col. 6, lines 57-59).

Takane et al. continues, "FIG. 11 is a schematic diagram showing a composing process according to the present invention. The figure illustrates an example in which pixel values from a Sobel filter are set as in-focus evaluation references. Like image differential, the Sobel filter is used to extract edge information of an image, and when a pixel value processed by a Sobel filter is large, this means that changes in pixel values around the pixel are large. That is, the pixel is in focus and is hardly blurred. Numeral 1101 indicates a plurality of images captured by changing a focus, and 1102 indicates

images obtained by processing each image 1101 by use of a Sobel filter." (Col. 6, line 60 to col. 7, line 4).

The Examiner appears to argue, "[t]he Sobel filter creating image set 1102" constitutes "detect[ing]" an "edge" of a "pattern" "by scanning an image of the pattern with edge reference data," as required by claims 1, 7, 11, and 18-20 (Office Action, page 7, paragraph 2). The Examiner states, "[i]t is well known to one of ordinary skill in the art that a Sobel filter is a discrete differentiation operator, computing an approximation of the gradient of the image intensity function" (Office Action, page 6, paragraph 2).

A Sobel filter computes an approximation of the gradient of an image intensity function. But merely <u>computing</u> an intensity <u>gradient</u>, as performed by the Sobel filter in *Takane et al.*, does <u>not</u> constitute "<u>detect[ing]</u>" an "<u>edge</u>" of a "pattern" "by <u>scanning an image of the pattern with edge reference data</u>," as required by claims 1, 7, 11, and 18-20 (emphasis added). For example, *Takane et al.* does not teach or suggest any processing of the intensity gradient in order to "detect" any particular "edge" of the sample represented by the image, as would be required by claims 1, 7, 11, and 18-20. In contrast, claims 1, 7, 11, and 18-20 recite that the "edge reference data" is used as a "reference" to "detect" the "edge." Thus, *Takane et al.* fails to teach or suggest "detect[ing]" an "edge" of a "pattern" "by scanning an image of the pattern with edge reference data," as recited in claims 1, 7, 11, and 18-20.

Gleason et al. does not make up for the deficiencies of *Takane et al.* because *Gleason et al.* also fails to teach or suggest "detect[ing]" an "edge" of a "pattern" "by

scanning an image of the pattern with edge reference data," as recited in claims 1, 7, 11, and 18-20. The Examiner does not rely on *Gleason et al.* for any teaching or suggestion of "detect[ing]" an "edge" of a "pattern," as required by claims 1, 7, 11, and 18-20. The Examiner only relies on *Gleason et al.* to allegedly teach other limitations of the claims.

Furthermore, the Examiner has not identified any apparent reason why one of ordinary skill would modify *Takane et al.* and *Gleason et al.*, either alone or in combination, to obtain "detect[ing]" an "edge" of a "pattern" "by scanning an image of the pattern with edge reference data," as recited in claims 1, 7, 11, and 18-20.

Thus, since it would not have been obvious to one of ordinary skill to combine *Takane et al.* and *Gleason et al.* to obtain "detect[ing]" an "edge" of a "pattern" "by scanning an image of the pattern with edge reference data," as recited in independent claims 1, 7, 11, and 18-20, these claims and claims 2-6, 8-10, and 12-17, which depend from some of these independent claims, are allowable over *Takane et al.* and *Gleason et al.*
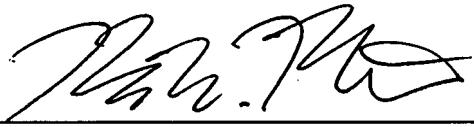
CONCLUSION

In view of the foregoing amendments and remarks, Applicant respectfully requests reconsideration of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our Deposit Account No. 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

Dated: July 26, 2007   By:_____

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